FATNESS, OVERWEIGHT, AND LIFE ASSURANCE.

BY

F. PARKES WEBER, M.A., M.D., F.R.C.P. Lond.,

Physician to the German Hospital and Medical Officer to the North British and Mercantile Insurance Company.

REPRINTED FROM THE

PROCEEDINGS

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These remarks, written at rather short notice, will, I hope, be regarded merely as an attempt to introduce a discussion.

Obesity, according to the definition which I prefer, is a state of the body characterised by an *excessive* amount of fatty tissue, chiefly in the situations where it is normally most abundant. To estimate correctly the degree of obesity merely by the relation of weight to height is obviously not, strictly speaking, practical, because the relation of the amount of fat to the size of the muscles and bones is not thereby taken into consideration. Moreover, variations in the proportion of weight to height, either in the direction of leanness or obesity, differ in regard to their pathological significance probably not only according to age and sex, but also according to race and family, and according to mode of life. A temperate man, who by an active life in the open air, maintains the functions of all his organs, may be expected not to suffer from an amount of fat which might be detrimental were he living a sedentary life in town. Such points can, of course, be better estimated by the medical officer who personally examines the applicant for life insurance than by one who has to rely on mere figures and written answers to questions.

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* I here employ the word Fatness instead of Obesity, because, according to some definitions, the latter term has a more restricted meaning than I am inclined to give it.

In obesity, as in other morbid conditions, a given exciting cause has a more injurious effect in some individuals than in others. Thus some persons, however much they eat and drink, never become fat, whilst in others "everything they take turns to fat," though they have not particularly good appetites and are not indolent. The defective state of the metabolic functions, which, in association with *relative* excess of food leads to obesity, may be due not only to hereditary influences, want of exercise and habitual disturbance of the metabolic functions from alcoholic drinks, but also occasionally to relatively transient causes. For instance, cases have been known to follow typhoid and other fevers, severe hæmorrhages and privations such as those experienced during prolonged sieges. Nervous conditions have some influence in regard to obesity as they notoriously have in gout and diabetes. Constant anxiety, grief and worry tend usually to leanness, whilst equanimity and a habitual "comfortable" frame of mind are more likely to be associated with obesity. It is possible, however, as suggested to me by Dr. R. Bowles, that in some of the cases formerly thought to illustrate the connection of obesity with mental inactivity, there was really a myxœdematous element present. The associations of obesity with disordered functions of the sexual organs and occasionally of the thyroid gland are, of course, well recognised.

We may here remark that the extremes in regard to weight, unlike the extremes in regard to height, seem to be very rarely associated with congenital abnormalities in the structure of the body.

We are, I suppose, all agreed that obesity tends to shorten life. In a well-known English text-book* we read: "No good insurance office will accept at ordinary rates the life of a man whose weight bears more than a certain proportion to his height. It is notorious that such persons bear even slight accidents badly, and succumb to illnesses that would be unattended with danger in healthy subjects." Sir Dyce Duckworth writes: †"Obesity is

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* Fagge's "Principles and Practice of Medicine." First Edition. 1886 Vol. II., page 311.

† Allbutt's "System of Medicine." Vol. IV., page 615.

recognised by medical officers for life assurance as an indication of imperfect health. If the body-weight bear an undue proportion to the height of the individual, such cases are either 'loaded' or declined as second or third class lives. Obese persons bear accidents badly, are unsatisfactory subjects for surgical operations, and are apt to succumb to serious illnesses." The weight and relative helplessness of obese patients tend to hinder physical examination and in various ways obscure the diagnosis, whilst their vast accumulations of fat increase, partly mechanically, the difficulty of medical and surgical treatment. Dr. W. H. Allchin* observes that acute diseases in an obese subject run "a singularly unfavourable course. The diminished power of heat radiation increases the pyrexia; and the weak heart favours the establishment of the adynamic state. Such means for lowering the temperature as cold applications have but little effect through the thick fat; and aconite is contra-indicated by the pulse. But since the oxidising process in the corpulent is diminished, the temperature in the febrile state is rarely very high, and at the same time is but ill resisted."

Dr. Shepherd,† in a paper on "The Relation of Build to Longevity," 1899, concludes that "overweights are poor risks, because (1) they are abnormal; (2) they are prone to develop heart disease, apoplexy, and premature arteriosclerosis; (3) they are peculiarly liable to diabetes, rheumatism, and lithæmia; (4) they take insufficient exercise and eat heartily, as a rule, and frequently are intemperate in the use of stimulants, particularly of malt liquors; (5) they succumb easily to accidents and surgical operations." He tabulates the experience of the Connecticut Mutual Life Insurance Company from 1846 to 1895, showing percentage of deaths amongst 26,222 dying from all causes, classed as overweights and underweights (that is by as much as 20 per cent. of the normal weight or more). The tables show that whilst more than half of

* Quain's "Dictionary of Medicine." 1894. Vol. II., page 250.

† Quoted by Dr. C. L. Greene. "The Medical Examination for Life Insurance." 1901. Page 129.

the underweights died of tuberculosis, respiratory and nervous diseases, "a marked majority of overweights died of nervous, circulatory, kidney and respiratory diseases," 28 per cent. of all the deaths from diabetes being found amongst the overweights and not one among the underweights.

However, corpulent persons do sometimes last out to a good old age, and quite excessively obese individuals may live to between 50 and 70. Dr. George Cheyne* (1671-1743) at one time weighed 32 stone, but by diet, &c., reduced his weight by nearly one-third, and lived 72 years. Even Daniel Lambert was about 40 when he died; at which time he weighed nearly 53 stone.

The question of the amount of "loading" required for the lives of obese persons brings us to the following eight points, the consideration of which constitutes the chief part of my paper.

1. Weight Measurements and Relation of Weight to Height in Fat Persons.

In all probability the chances of longevity are greater amongst persons of medium height than amongst very tall persons,† say over 6 ft. 1 in. Excessively tall persons ("giants") are notoriously short-lived. Probably, therefore, a very tall fat man is likely to die earlier than a short fat man, though the ratio of weight to height be the same in both cases.

I believe myself that very great body-weight somewhat lessens the chances of longevity even in muscular big-boned men, in whom the relative proportion of fat, muscle and bone is normal. The "beefy" men of Herculean build and great strength of muscle, though they may be rightly termed *exceptionally fine men*, have not the best chance of longevity, independently of the fact that they are specially prone to lay on fat if they give up active habits.

The value of a relatively large weight to height ratio when there is a supposed tendency to tuberculosis will be alluded to later on.

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* See William Wadd, "Cursory Remarks on Corpulence." Third Edition. London, 1816. Page 47. See also Dr. J. F. Payne's Biographical Notice in the "Dictionary of National Biography." Vol. X., page 217.

† See the note on a Report by Dr. M. E. Moss and a Committee in the "Philadelphia Medical Journal," 8th December, 1900, page 1074.

In cases of fatness, evidence of *constantly increasing weight* is as important as is evidence of constantly decreasing weight in cases where consumption or malignant growths are suspected.

The abdominal and thoracic girth measurements should supplement the evidence of fatness derived from the weight and height measurements, but we shall refer to this point in another place.

The question of how much variation from the normal weight and height ratio can occur without diminishing the chances of longevity is a difficult subject. The general appearance, strength and activity of the applicant must be taken into consideration, as well as his family history (and race) and his habits, and whether his weight appears to be stationary, or decreasing, or increasing.

Dr. C. L. Greene,* who gives tabular results of recent American investigations regarding the standard weight and height measurements, says:—"Roughly speaking, a man five feet eight inches in height should weigh from 150 to 162 pounds according to age; and for each inch above or below this height five pounds should be added or subtracted." . . . The "allowable variation is greater upon the side of over-weight than of under-weight. If the applicant's family and personal health record be above suspicion, 20 per cent. more or less than the average weight is allowed by every company. Some have in the past allowed 25 per cent. under-weight; and one or two 45 to 50 per cent. over-weight, under the same restrictions. It is difficult to decide what the proper figures should be, and any rule must be subject to an occasional exception, but at present the tendency is in the direction of greater conservatism." . . . . "Generally speaking, it may be said that if a man be thick-set, hard, muscular and big-boned, his personal and family history above suspicion, his habits temperate and his digestion good, his waist measurement less than that of his chest, he may safely be allowed a margin of from 25 to 30 per cent. above the tabular weight. Anything more should call for special rating or endowment policies. Some companies allow 45 to 50 per cent.,

* "The Medical Examination for Life Insurance." 1901. Pages 121–130.

others rarely more than 30 per cent., while one company is said to accept no one who weighs over 225 pounds."

Shepherd,* classifying a number of cases according as the weights were within normal limits or 20 per cent. or more over weight or under weight, found that of the normal weights 14·5 per cent., whilst of the underweights and overweights 21·7 per cent. and 30·2 per cent. respectively had died. In the discussion on Shepherd's paper Dr. O. H. Rogers, from other sources, was able to confirm the injurious influence of overweight on longevity. He remarks: "I think that there is only one conclusion to be drawn from the facts, and that is that any company that accepts risks on lives twenty-five per cent. or more overweight is going to have a high mortality among those lives. From observations of my own, I am able to say with the utmost confidence that high mortality will occur whether they are insured on life tables or on endowment tables, and in spite of the care shown in their selection."

2. Relation of Obesity to Age.

Excepting, perhaps, in children, it is during the middle period of life that obesity may be said to be "least abnormal." After the age of 60—65 the presence of much obesity should probably prevent acceptance of a life altogether.

3. Relation of Fatness to Sex.

The general experience seems to be that corpulency is less injurious in women than in men. It is as though the female organism, specially adapted to accommodate itself to the burdens of child-bearing and lactation, has likewise the best power of accommodating itself to the burdens of obesity. In this connection the fact that women will, on the whole, more readily than men abstain from alcohol and undergo dietetic and other treatment for obesity has likewise to be taken into account. On the other hand, in women obesity may come on very unexpectedly, possibly in relation to disturbed functions of the sexual organs and premature menopause.

* Quoted by Greene, *loc. cit.*

Dr. J. R. Wardell* gives at some length the case of a married woman, who at 18 was thin and delicate; she had no children and lived well, and at 41 died in a condition of extreme obesity. I can myself remember two extremely delicate looking young women, both of whom I know afterwards became monstrously obese and died, one aged about 46, the other about 39; the first became diabetic, the second dropsical. Both of them were married, and the first had several children. This chance of the unexpected development of extreme obesity is hardly of sufficient importance to be taken into special consideration when recommending young women with apparently first-class lives for insurance.

4. Relation of Obesity to Family History and Race.

A fat person's chance of longevity may be accounted greater if the family history shows that his parents and some of his other relations have been equally fat, and have yet lived to a good age. On the other hand, his chance is less when there is a family history of deaths at relatively early ages from diabetes, cardiac failure (especially if unassociated with rheumatic valvular disease), emphysema and bronchitis, "asthma," "congestion of the lungs," and other diseases, which are either pathologically allied to obesity, or, at least, are favoured and rendered more dangerous by the obesity.

When there is a decided family history of tuberculosis a moderate tendency to fatness unassociated with alcoholic indulgence or other unhealthy habits is a point in the applicant's favour. Dr. A. B. Bisbee† from an examination of cases with a supposed predisposition (hereditary or acquired) to consumption in the combined experience of the Washington Life and National Life Offices found that the percentage of consumptive deaths was 5·59 when the weight was above the standard, and 42·51 when the weight was below the standard.

Corpulency is more frequent amongst certain races than others, for instance, amongst certain castes of Hindoos. I do not know how

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* "London Medical Gazette." New Series. 1849. Vol. VIII., page 536.

† See C. L. Greene, "Medical Examination for Life Insurance." 1901. Page 329.

this affects their chances of longevity, but I believe my friend, Dr. T. D. Lister, who is present this evening, has received some information on the subject. Dr. C. L. Greene* says "The Tennessee mountaineer is tall, thin, and wiry, but very healthy and long lived. A Pennsylvanian Dutchman is remarkably heavy for his height, but is, nevertheless, also long lived. Such men cannot be held to the same weight limits as would apply to men of a different race and build."

5. Relation of Fatness to Past History.

Sometimes the obesity is apparently not progressive, it being shown that the applicant's weight has remained about the same for a long time, or has even slightly diminished in recent years. This circumstance is of course favourable, especially when the fatness has never been extreme. Sometimes, as already mentioned, the accumulation of fat may supervene on convalescence from an acute disease, such as typhoid fever, or follow great privations (*e.g.*, the cases said to have followed the Siege of Paris, 1871), or other causes of debility. In these cases the obesity may be merely of temporary nature and soon disappear, either with or without special methods of treatment.

6. Relation of Obesity to other Diseases.

When there is pulmonary emphysema, a tendency to bronchitis, or a history of attacks of asthma, the presence of obesity, with the extra burden which it throws on the heart, makes the life a still less satisfactory one. No life is, I think, insurable, in which any disease of the cardio-vascular system is combined with obesity. Recently I had to examine an obese, rather plethoric-looking, middle-aged man for insurance. Although there was obesity in the family, the family history in regard to longevity seemed not to be particularly bad. I could find no evidence of disease besides the large accumulation of fat and very decided pitting to pressure over the shins. Cases of this kind, that is, when obesity is associated with decided (more or less chronic) œdema of the lower extremities, as it not very rarely is, should, I think, all be rejected, even in the absence of obvious cardiac or renal disease.

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* "Medical Examination for Life Insurance." 1901. Page 122.

The tendency to atheroma of arteries and death by cerebral hæmorrhage is greatest in the "plethoric" type of obese persons, in whom the excess of adipose tissue is generally associated with great muscular development and strength. These are the persons, who, to borrow a quotation recently used by Dr. Gee, "are full of coarse strength, rude exercise, butcher's meat, and sound sleep." They are probably, as a rule, no more amenable to treatment than other obese persons, nor are their lives more satisfactory for insurance purposes.

We must here mention the now well-known association of obesity with glycosuria (and diabetes). Sugar often appears in the urine of fat persons. Frerichs* found that 59 of 400 diabetic patients, that is 15 per cent., were obese, Seegen 30 per cent., Bouchard 45 per cent., Carl von Noorden 21 per cent. Kisch, from his experience at Marienbad, came to the conclusion that of persons with hereditary obesity more than half become diabetic, whilst of persons with acquired obesity (diet, etc.) about 15 per cent. become diabetic. Noorden points out that "alimentary glycosuria" can be sometimes induced by the administration of only 100 grammes of grape sugar, in the case of fat persons whose urine has not yet been found to contain sugar. He thinks that such persons have a kind of "masked diabetes," that their power of burning up sugar is limited, and that later on they may become actually diabetic. The diabetes of fat persons past middle life is not usually of the severe form, and generally disappears, at least temporarily, under suitable diet. Sometimes, however, a severer form of diabetes and diabetic coma may ensue.

7. Relation of Obesity to Food, Drink, Occupation and Habits.

We need scarcely draw attention to the importance of information on the habits of fat persons in regard to food and drink. Sir Dyce Duckworth† writes: "Occupation and habits of life are

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* See "Die Zuckerkrankheit." By Carl von Noorden. Third Edition. Berlin. 1901. Page 53.

† Allbutt's "System of Medicine." Vol. IV., page 615.

familiarly known to induce obesity in certain classes of persons. Sedentary life, whether in or out of doors, favours it. Active members of any profession are not prone to become corpulent unless there be a strongly-inherited tendency. Coachmen are apt to suffer unless they groom their horses. Soldiers and sailors do not become obese until they retire from active duties. Sea-captains, owing to their good appetites and limited locomotion, are often victims in spite of their open-air life. In all these cases habits of beer drinking or of spirit drinking (even if well diluted) are certain to aggravate the tendency."

8. The Kind of Obesity, and the Possible Influence of Appropriate Diet, etc., in Regard to Life Insurance.

Plethoric types of obesity may be distinguished from anæmic types, but there are intermediate forms.* Of more importance for insurance purposes is a classification derived from the family history of fat persons. In some families, in spite of a tendency to obesity, the average duration of life, even of the fat members of the family, is fairly good. In other families a tendency to obesity is combined with one to bronchitis and cardiac weakness, and to relatively early death from diseases of the heart, blood-vessels, and lungs.

When there is no family tendency, and the obesity results from over-eating, insufficient exercise, etc., the chances of improvement by dietetic and other means are greater. On the other hand, Sir James Paget, from the surgical point of view,† at

* A moderate tendency to plethora and fatness is often associated with great muscular development and great physical and mental energy. The "John Bull" type of Englishman is a capital example. Such persons, if they have active open-air occupations, may be long-lived. This was probably recognised by the great Francis Bacon when, in his "History of Life and Death," he wrote:—"Macies cum affectibus sedatis, tranquillis et facilibus; *pinguior autem habitus cum cholerâ, vehementiâ et pertinaciâ*, diuturnitatem vitæ significant."

† The apparent contradiction between these two views is explained in the following way. Fatness induced by alcoholic indulgence and indolence may certainly to some extent be counteracted by giving up the injurious habits in question. On the other hand, obesity, when brought on by alcohol, &c., is only a part of a morbid process, and is more likely to be associated with grave degenerative changes in the cardiovascular system than when there is no apparent cause for the corpulency, excepting perhaps a family tendency. In the prognosis of obesity, no less than of cardiac disease of middle life (see J. Mitchell Bruce's "Lettsomian Lectures" 1901), the cause as well as the amount of the affection has to be considered. (Note added April, 1901.)

any rate, considered over-fat cases to be especially bad if the fatness is not hereditary, but in any degree referable to over-eating, soaking, indolence and defective excretions. The worst of the class, he thought, might be known by their bellies being pendulous and more prominent than even their thick subcutaneous fat seems to account for. This tells of thick omental fat.* Sir J. Paget's experience brings me to another point. In examining fat applicants for life insurance, height and weight and thoracic measurements should not be considered sufficient, but the maximum girth of the belly (probably at the level of the umbilicus, if taken with the applicant reclining at full length on his back) should likewise always be ascertained and compared with the chest measurement—namely, the circumference of the expanded thorax at the nipple level.

In regard to the results of dieting, etc., the question is not *How much can* obesity or the tendency to obesity be counteracted by treatment, but *How much is it likely* to be favourably influenced in the particular case; and we naturally remember how often treatment is neglected or entirely given up by corpulent persons whose condition much requires it.

A sign of the frequent intractability of obesity to treatment is the fact that a great accumulation of fat is often found on the bodies of obese persons, even when death has taken place from chronic wasting diseases, such as cancer or cirrhosis of the liver. In the reduction of obesity much depends on the energy of the patient, on his intelligence and determination. We have already alluded to the case of Dr. George Cheyne, who weighed 32 stone, but by treatment reduced himself by one third and lived to 72 years of age. Exercise, diet, &c., when they fail to remove the obesity, may still do good by maintaining the activity of the various organs. However, even if treatment is successful, the tendency is for the obesity to return when the treatment is discontinued, and the life of a man who has constantly to be following medical directions for obesity cannot be called a first-class one any more than the life of a man who passes

* Sir J. Paget, "Clinical Lectures and Essays." 1875. Page 14.

sugar in his urine unless he adheres to certain rules of diet. An extra rating is, however, hardly required in otherwise satisfactory lives when moderate obesity which followed an acute disease, has long entirely disappeared either with or without the help of special treatment.

Is it Possible to Formulate Exact Rules for Loading Lives According to the Percentage of Overweight?

Personally I am inclined to take as grave a view of the risks of overweight as that taken by the American authors whom I have quoted; I am inclined to place rather narrow limits on the variations from the normal standard to be accepted without loading.

Cases of extreme obesity would naturally be rejected by all insurance companies, but in regard to the lesser cases, owing to the many questions previously referred to, I think no general rules for loading can be formulated. English statistics bearing on the subject are, as far as I know, almost wanting. Heights and weights hardly figure at all in hospital post-mortem entries, and the certificates of death required by law can yield no information in this direction. I hope, however, that the discussion to-night will elicit individual experiences of medical men and insurance companies.

Sir Dyce Duckworth: I think all the members of the Society will agree that the author of the paper to-night has really, in one sense, left us very little to discuss, because he has discussed almost every phase of the topic. On the other hand, he has opened out so many suggestions that he has provided matter for a good discussion. I have been thinking over the subject since I heard this paper was coming on, and I thought I would ask the Manager of the Insurance Office to which I am attached what his experience was. His experience of life assurance work is very large, but in this matter exceedingly small, and he told me that he could not remember that his Society had suffered in any degree from cases of fatness, which shows that the medical officers of his Company have done their duty well for many years back. He had nothing more than impressions, which a good many of us have, and I am one of those who believe that impressions in medicine are

very good things. At all events, he had the impression that unduly stout people were bad subjects for life assurance. From what he had seen, read, and heard, he thought that unduly stout people were bad subjects for acute disease, and that their lives were generally shorter than those of people who were of thinner build. Sir James Paget used to teach that stout people were certainly short-lived as compared with the "lean slippered pantaloon" type of man who went on to a great age. I think most of us who have known people who have lived into the 80's or 90's have found that they were lean, mummified kind of people, whose vital rhythm went on quite quietly, and who were not disturbed by undue obesity at any point. I also remember Sir William Jenner telling me a story which I think should serve all practising physicians in good stead. He was called down to the country once to see a gentleman suffering from pneumonia. It was cold winter weather, and the practitioner met him at the station with his carriage, and said "I am afraid this is a very bad case, and I do not expect this man to pull through. He is a lean, poor, miserable, thin man, and spitting up large quantities of blood." Sir William Jenner said: "You have told me two things that make me think favourably of the case, because the leaner the patient, and the more blood he spits up in pneumonia, the more likely he is to pull through." That patient recovered. I suppose none of us would be inclined to pass an unduly stout person, and yet I think we must never pay too much attention to this one symptom, but must, in reviewing the whole life and character of the patient, his physiognomy, and general habits, have regard to the obesity in connection with other matters, family history, time of the obesity coming on, the condition of the heart, the circulatory system, the urine and the manner of life. The mere fact that a person is obese, *per se*, is not enough to condemn a man. A man may be recommended as a second or third class life who really presents a great amount of adipose tissue, if we see it in its due place, and we must not reject a man on account of any particular thing as an all-round general principle. I think if we look at it in that light we shall do what is most

fair to the average applicant. I should be prepared to say that I have seen a very few unduly stout applicants for insurance. I do not think we see great big Falstaffs, and that class of people; in my experience they certainly do not often present themselves. But I confess one is immediately arrested by their bulk, and has to consider most carefully what the particular symptom may mean in each individual case. That is the case in life assurance as well as in the practice of medicine, we do not treat particular diseases, but treat people who are in those conditions, and who are suffering from those diseases. The occurrence of obesity in slender women was alluded to by Dr. Parkes Weber, and as it is a point which has been noticed, especially in families who have a gouty inheritance, it is curious to observe how some of the single daughters or sons of a family inheriting gout, will suddenly become extremely stout, grotesquely obese, while others of the family retain their comeliness. This has been called arthritic obesity. I have certainly come across instances of that kind. I think Charcot alluded to such cases. A perfectly slim, beautiful young woman of 17 or 18, at the age of 35 will be quite unsightly and extremely obese, and sometimes these people, when they have accumulated a large amount of abdominal and omental fat, begin to be glycosuric, and after the glycosuria has lasted some time they may lose their fat, and eventually become severely diabetic. The presence of diabetes in the obese has to be considered in the case of life assurance. If the urine is examined and found to contain a little sugar, such cases should be at once arrested. I think Dr. Weber is to be congratulated on having produced this paper.

Dr. de Havilland Hall: I agree with Sir Dyce Duckworth in thanking Dr. Weber for this excellent and suggestive paper, which will be of great service to us to refer to in future. In reference to the subject of obesity in regard to life assurance, I was very much struck by a remark made by Dr. Heron at one of our previous meetings. The question of obesity came up, and he said he would advise any obese applicant for insurance to apply at an office where the medical officer himself was stout. I understand from Dr. Heron

that that advice has been followed in one instance. Naturally, a man who is somewhat above the average weight looks with more kindly feelings on a fellow sufferer than a man like myself, who is very much underweight. At all events, when I joined my Assurance Office my senior was rather a portly man, and there were a good many portly men among the Directors, and I think that is one explanation of the number of over-weights I have come across in going over the mortality of the past. I was rather disappointed to find that I had only three complete years available to refer to. The years are 1897, 1898, and 1899, and in those three years we have had 297 claims, and out of those there have been 26 over weight. The scale we have adopted at my office is to take all over 15 per cent. as over weight, anything under 15 per cent. we will take as a first-class life, other things being equal. Fifteen per cent. was the margin I suggested some years ago, and my directors accepted it.

The PRESIDENT: Do you reckon that fat or muscle?

Dr. DE HAVILLAND HALL: Simply the average weight compared with the standard. It has no reference to the origin of the fat, but simply to the bare figure.

Dr. ————: Do you treat country cases in the same way?

Dr. DE HAVILLAND HALL: Yes, all alike. I do not say that we will not take them over 15 per cent. without addition, but we look upon everything under 15 per cent. as to be disregarded altogether.

Dr. PARKES WEBER: May we hear something about the under-weights?

Dr. DE HAVILLAND HALL: 15 per cent. would be almost the maximum as under weight. We are, of course, more particular with the under-weights than the over-weights. Nearly all offices agree that under-weight is much more serious than over-weight. Of these 26 over-weights who became claims in these three years, 21 were losses to the office; 15 per cent. of those claims were for over-weights, and 7 per cent. were losses to the office. That will show what an extremely important thing the question of over-weight is. It will certainly make us careful in

the future in recommending over-weights. In the last five or six years I have been diligently impressing this upon my directors. I give them a report every year of the mortality of the year, and I point out these cases, and tell them how many deaths have been over-weights, and what the losses are. On looking at the causes of death some were due to suicide, glanders, dysentery and malignant disease, and possibly accident; but here again, although we know that over-weights are bad subjects for disease, these diseases can be very little affected by the over-weight of the individual. Those claims amounted to seven. On the other hand, deaths from influenza, pneumonia, rheumatic fever, cirrhosis of the liver, and apoplexy, were probably influenced by the presence of obesity and the conditions which induced it, and those claims were 14 in number. So that out of the 21 cases in which the Company experienced a loss, 14 were from diseases in which, I should think, the obesity would play an important part in giving rise to death. As regards the margin, I have said that my Company take 15 per cent. as the limit of safety. Anything under 15 per cent. is accepted without any hesitation, but from 15 to 20 per cent. they are very much more careful. Over 20 per cent. certainly the life would be loaded, and I think they are now getting to refuse cases of more than 25 per cent. over-weight, unless there is some particular exception. Last week we had a farmer in middle life, living an out-door active life, with a good family history, and he was just a few pounds over the 25 per cent. margin. I ventured to recommend this man as a first-class life, in spite of his 25 per cent., based largely on the fact of his excellent family history, his excellent habits, and his out-door life, but I doubt whether it was a very wise thing to do. Then in estimating the proportion between height and weight one must always allow a margin for the age of the individual. The tables generally given of the relation between height and weight are drawn up for the age of 30, and I am accustomed to allow half to a pound per year for the addition which takes place in the normal tendency to increase of weight with advancing years. I think we may take it that most people do put

on weight towards middle life, therefore, what would be a normal weight for a man of 30 is certainly rather below weight for a man of 40 or 45. Dr. Parkes Weber spoke about a tall man of 6 feet 1 inch being undesirable. I go further than that. I think anyone over 6 feet is more or less an uncertain life. They are not nearly such good lives as a man about 5 feet 10 inches. I must say that I attach great importance to having the height and weight of all candidates for insurance, especially in the country. It seems to me a great source of comfort in recommending a life to have accurate measurements as to height and weight, feeling certain that, in a man against whom there is nothing more to be said, if we find there is a correspondence between his height and weight well within the 15 per cent. margin, there is much less risk in recommending this man than if the margin is exceeded in either direction. If he is much over 20 per cent., with any unfavourable feature in his family history, as deaths in middle life. it would certainly induce me to rate him up considerably, to suggest that he should come to the head office, or possibly that the life be rejected. With regard to the tendency to diabetes in these cases, I may say that three of my deaths were from diabetes, four from apoplexy, and three from cirrhosis of the liver. Curiously enough the two deaths from heart disease were both sources of gain to the Company. That was quite contrary to what I expected : I expected to have found there would be several deaths from heart disease amongst these over-weights. Apoplexy, diabetes, and cirrhosis of the liver were specially fatal. However, my figures are very much too small to base any decided argument upon, but still I thought the Society would like to have them, such as they are, as at all events they represent the actual facts observed by myself in the course of the last three years.

Dr. Symes Thompson : Mr. President, we have to thank you, Sir, for suggesting, and Dr. Weber for bringing before us this paper. As regards definite diseases, we are able to form very definite views as to their course ; but with regard to these indefinite things, such as stoutness and leanness, we need the guidance and help which

such a society as this is calculated to give us. Twenty-five years ago, in my office, an analysis was made of lives that had been rated up, and the mortality arising amongst those who were too stout was so very large as to draw my attention forcibly to the matter, and I think in my office, as in that of Sir Dyce Duckworth, there has been since that time very much greater care exercised as regards over-stout people than before, and I think I may say that the mortality from this cause has not been so excessive. Yet, at the same time, I think it must be admitted that, say what we will, this class of case is an exceedingly unfavourable one. When you come to compare the stout—as Dr. Hall has done—with the lean folk, it must be admitted that they are much less satisfactory than those whose weight is less than the normal. Of course, a considerable number of those whose weight is less than normal die prematurely, especially from pulmonary affections; yet the care taken to exclude tuberculosis cases is so great, that I think those who are below the average in weight turn out favourably, on the whole. For my part, I should be very much more ready to accept a man 15 or 20 per cent. below the average without extra rating than I should if he were 15 or 20 per cent. above the average. I remember making this statement in an article I wrote on life assurance for Clifford Allbutt's Dictionary, and I have been accustomed to act upon it since that time. With regard to the connection which obesity bears to other diseases, I think this has been so fully and clearly put by Dr. Parkes Weber that I am hardly inclined either to traverse or criticise his conclusions. I think his description is exceedingly good. As Dr. Hall said, we shall find it of very great help in future. But as regards the facts: when we come to meet with these people in detail, whether we see them ourselves, or see the reports upon them, we must admit that the difference of build, the weight of the bones and the muscles, etc., have so large an influence that the mere weight as compared to height is not taken alone of very great value. It is the person with a pendulous abdomen, a great amount of omental fat, and the like, whom we have to fear, and of course if that is associated with any tendency to transient glycosuria, and if

it is associated, as I believe it often is, with a tendency to œdema' I think we must regard it as a serious thing. I believe, as Dr. Parkes Weber has said, it is not at all an unusual thing to find in stout people slight pitting over the tibia, and when we find this present, it means that there is a lack of circulation, oxidation, and of vitality, so that such a person would have great difficulty in throwing off disease. I would strongly emphasise the risk which we run in accepting those whose weight is 20 per cent. above the normal. Let me mention a case illustrating the danger of excessive weight. Five months ago I passed a man, at ordinary rates, at 33, 6 feet in height, and weighing 14 stone 7 lbs. His breadth and muscular development were great, and he was not distinctly obese, yet he became a claim within four months. He died of influenza-pneumonia, which would probably not have occurred had he been a smaller man.

Dr. Glover Lyon: I have listened with great interest to the very able paper by Dr. Parkes Weber. This is a subject which has been from time to time suggested, but Dr. Weber has been the first one who has had the pluck to tackle it. I think the chief value of his paper is the extreme thoroughness of it. He has gone through every point that could possibly come into the question. That was the trouble in obesity. We all thought of certain cases of our own experience, and we heard of other cases of men with larger experience, but we were not able to go through the subject so thoroughly as we have been able to do to-night. One point, I think, Dr. Weber mentioned, though perhaps he did not quite make enough about it, was the subject of race. I think in point of race there is one very large race which should be dealt with, specially in obesity, that is, the Hebrew race. I am inclined to think obesity in the Jew does not mean what it does in the Gentile. They are more given, as a race, to obesity without feeling the effects of it, and you may also say as a general rule that Jews do not drink to excess, so that one very great danger in obesity is avoided in a Hebrew. Dr. Weber took a very lenient view of obesity in women. It is a mere opinion, but I am inclined not to agree with him. I should be

inclined to make no difference between a fat man and a fat woman. As to dropsy and pitting, the remarks I have heard were those I really wanted to hear, and I should like to hear some more on the subject. As a rule if I get any œdema of the leg in anybody, I refuse the life. I have often thought when I have a fat man before me with slight œdema, whether I was justified in doing so, and I should like very much to hear the opinion of experienced members of the Association on that matter. I, of course, have known fat men go on to quite old age, that is, considerably over 60, but at the same time I do think that until we know more about it we should refuse everyone who has œdema of the legs. Really the paper is so good that there are only a few minor points to discuss. With regard to the experience of a man in Marienbad as to obesity, I think it is utterly worthless, because his experience is so special.

Dr. Parkes Weber: It was only the experience on a special point, just one of the points a man in Marienbad could go into. It was a urine point.

Dr. Lyon: I thought you said he gave his experience as to the percentage of fat people who got sugar in the urine. I think that experience is quite unsound, because he would not have a general experience of fat people. Dr. de Havilland Hall mentioned the limit of percentage. If there is any truth in what Dr. Parkes Weber said as to a short fat man being a better life than a big fat man, I think we should give a larger margin to the short man in point of overweight than we should to the tall man. Is there really any reason to put a man up for obesity alone? Can any of us remember having a man come before us, say with 25 per cent. extra fat, any man weighing 15 st., without seeing something we did not like besides the mere obesity? I cannot imagine a man coming weighing 15 st. without seeing something else which made us distrustful of him. I have never seen such a man rejected for obesity alone, there must be other points about him which would make me inclined to refuse his life. That is a good deal confirmed by the remarks of Dr. Symes Thompson.

He showed us what very great extra mortality and loss there have been in stout people who had been put up, that is, they were not considered healthy lives. All Dr. Symes Thompson's experience—an extremely valuable one—comes to is, that amongst the extremely fat people that the examiner did not like a large number died. That would be, I think, the experience of all of us, but I do think clinical acumen should enable a man to refuse a life or accept him largely apart from mere obesity. I had the honour of reading a paper as to re-considering lives, and this is one of the very subjects that came into that category. Dr. Parkes Weber spoke of the past history as being valuable. In the same way I maintain that the future history would be. Suppose a man of 30, 20 per cent. or anything above the average, it would be reasonable to put that man up a certain number of years, and if his weight had not increased when he had got to 40 that extra might be taken off. It seems to me a particularly good chance of giving a man an opportunity of re-examination after a few years.

Dr. Lubbock: Perhaps I may also be allowed to add my thanks to Dr. Parkes Weber for his interesting paper. He has said almost all that can be said about this subject, but having made an analysis of 200 early death claims which I mentioned at the last meeting, I thought that it would be interesting to see how many of these were suffering from overweight. I found that there were 18 in which the weight exceeded the maximum weight which should exist at the same age and height.

The President: Just exceeded?

Dr. Lubbock: By a good deal in many cases, exceeding the average weight for the same age and height by 40 per cent. in one case, 30 per cent. in six cases, 25 per cent. in five, and more than 20 per cent. in the rest. The height of the applicants was usually great, being 6 feet or more in five cases, 5 feet 10 inches in four, and 5 feet 9 inches in two cases, this seeming to show that there was often something in the height of the patients which made them less acceptable applicants. In some, on account of their profession or habits, there seems to have been a tendency to generous living.

There were two brewers, one wine merchant, and two had gout, which probably meant that they were living somewhat freely, while two others are said to have lived generously. With respect to the cause of death in the different cases, nine of the 18 cases died from some vascular affection, six dying from heart disease, with fatty degeneration of the organ in three cases, one from aortic aneurism, one from cerebral hæmorrhage, and one from general arterio sclerosis and cerebral embollism. As has been already mentioned, the tendency to death from pneumonia seems to be somewhat great, three of these cases having died of that disease which in two of them was combined with bronchitis. In one case death was due to Bright's disease, in another to diabetes mellitus, and in the other cases death was due to suicide, typhlitis with abscess, hepatitis with intestinal obstruction and colotomy, and senile dementia with exhaustion. That 18 of 200 early death cases should have suffered from obesity does not seem a surprising fact considering the number of such applicants who present themselves for insurance. Upon looking through the last 900 cases which I have had to see, I found that from 6 to 9 per cent. of the accepted applicants suffered from this condition, so that the death of 18 in 200 does not seem as if obesity was a very potent cause of death.

Dr. DE HAVILLAND HALL: To get a percentage of overweights I should like Dr. Lubbock to tell us the losses of those 18. Could you say how many of these 18 were losses to the Company?

Dr. LUBBOCK: They must all, I fear, have been losses, 10 having been accepted at the ordinary rate, 4 with an extra of five years, 1 with the extra for gout, and the others as endowment policies payable in 15, 16 or 18 years. Death occurred in each case within from 1 to 10 years from the date at which the insurance was effected.

Dr. CARRUTHERS: If I may trespass at so late a period of the evening, there are two points I should like to refer to. Dr. Parkes Weber referred several times to an extremely important matter, the relation of the abdomen to the chest. I have been waiting for someone to put that into practical form and say what the relation of the

abdomen to the chest should be. At my own office we have no definite rule, but we have a tacit understanding, Dr. Colcott Fox and myself, that we do not consider a man as actually obese unless the abdominal measurement at the umbilicus is more than the expanded chest. I consider that liberal, but it is the only rule we have, and I give it for what it is worth. I have been astonished to hear the very strict limits that some of the English companies draw. I have always thought my company, one of the American companies, extremely liberal in this matter, and I fancy many of the members here will be horrified to hear that our overweight limit is 45 per cent. Until a man is 45 per cent. overweight there is nothing in the rules drawn up by the medical directors in New York to hinder our accepting him as an ordinary life. Dr. Fox and myself considered that a man 30 per cent. overweight ought to be looked closely into, but I do not think we have ventured to say much about cases under that. We have a form of questions covering very much the points that Dr. Weber mentioned, which, I understand, we obtained through the courtesy of the Edinburgh Life Office; and in every case that is more than 30 per cent. overweight or that has an abdominal girth equal to or greater than the expanded chest, we ask for answers to these additional questions. In matters of race our experience has been that Welshmen have a tendency to "run to belly," that the abdominal measurement is more in proportion to their weight than that of other parts of the country.

Dr. LISTER: I was unfortunately not present at the opening remarks of Dr. Parkes Weber and I do not know whether he gave a definition of overweight. I have always thought there was a need of such a definition and so far we find that the tendency of the majority is to regard 20 per cent. overweight as a condition of obesity. The question of abdominal and chest measurements is one that should be taken into account also, but in that age comes into play, and an enlarged abdomen under the age of 40 I should take to be a much more serious condition than when it occurred over the age of 40. Something has been said about the personal equation in restoring the balance in some of these cases of obesity,

and several speakers have referred to the fact that in nearly all these questions of overweight there is something else which leads one to consider that the life cannot be assured on any average terms. Dr. Parkes Weber asked me if I could give him any information about Indian lives. Our office has a branch in India and about one life that was rejected at the London office a letter was written from the Indian medical officer suggesting that the lives of natives of India exhibiting obesity with glycosuria should be considered on entirely different lines to the lives of Englishmen in the same case, on account of the absence of alcohol, the vegetarian diet, and the fact that nearly all those cases can be regarded as so-called dietetic glycosuria. He said we must consider those due to the excessive carbo-hydrates, and those due to the same associated with excessive fat. But the fact of obesity existing seems to me to suggest that it is impossible to regard an obese person in any condition of diet as being more insurable than any other person. When we have to form our judgment by examination we must form our judgment on the condition of obesity and associated conditions. In very few cases has it been my own limited experience to see those other conditions absent. If I may borrow a phrase of Sir Dyce Duckworth, as a junior examiner I have to go largely by impressions, but so far as my experience goes it has led me to regard the fact of obesity as being associated with other lesions. Dr. Carruthers has referred to the rough rule of comparing the measurement of girth with that of the expanded chest. It is one I have acted upon for some time and, although it is very rough and ready, I think it has some value.

Dr. Davies: Dr. Glover Lyon in referring to the question of race said that the Hebrew race were not given to alcohol, that they were subject to obesity and that we ought to regard them as a different class of life from other races. But, I believe as a matter of fact, it is recognised that Jews are very liable to diabetes. Amongst the Jews I have seen during the years I have been in practice, I have been very much struck by the number of diabetics amongst them. This brings us to the statement of Dr. Parkes

Weber, that these are difficult cases to deal with. I have long tried to ascertain the reason of this liability to diabetes, but there seems to be no satisfactory explanation. I believe the Jews are gross feeders, and it may be possibly due to this or even to their extreme mental activity. On the other hand I believe the Jews are not liable to consumption. With regard to the question of diet, I do not think we can expect our obese applicants to go under treatment. They come to us to insure their lives and we cannot rely on their going to their doctor to get rid of their obesity.

Dr. Parkes Weber, in reply, said: I must first thank all those gentlemen who have so kindly contributed to the discussion to-night —especially Sir Dyce Duckworth, one of whose pupils I have the honour of being. I had an excuse ready in case my paper was not well received—viz., that whilst I was writing it, my own weight fell so decidedly, as to be less than it was nineteen or twenty years ago.

Our President remarks on the typical "fat boy": I think that the "fat girl" has likewise a just claim to recognition. I hardly alluded to fat children, as they do not ordinarily come to have their lives insured; but, early in the seventeenth century, Francis Bacon, in his "History of Life and Death," wrote that fatness in youth pointed to a short span of life.*

Dr. Arthur Davies and Dr. Glover Lyon referred to the very interesting subject of the relative frequency and significance of obesity amongst Jews. The relative frequency of diabetes amongst them is generally admitted. I take, however, the same view that Dr. Glover Lyon does—namely, that obesity is not, on the whole, of such bad prognosis amongst Jews as it is amongst others, and would explain this as due to the fact that they mostly avoid excessive indulgence in alcohol, tobacco, &c.

Women, likewise, mostly avoid such excesses, and this is probably one of the reasons why obesity is less harmful to them

* His words are: "Obesitas in juventute breviorem vitam præmonstrat; in senectute res est magis indifferens." (*Longævitas et Brevitas Vitæ in Homine*, Section 39.)

than to men. Sir Hugh Beevor, however, before he left us this evening, wrote a note for me, saying that fatness was probably more normal in women than in men, and therefore, he supposed, of better prognosis. Measurements show that. In women the thigh, particularly, is normally thicker in relation to height than the thigh in men. To illustrate the relative freedom of women from certain injurious habits, I may mention the fact that in the various morbid conditions more or less resulting in the children from alcoholism or syphilis in the parents, the bad inheritance generally comes from the father.

Dr. S. W. Carruthers mentioned the importance of taking the girth of the abdomen as well as that of the chest. I should prefer taking the maximum girth of the abdomen to the measurement at the umbilical level, especially when the abdomen is somewhat pendulous, and the measuring tape has to be adjusted whilst the standing position is maintained.

What Dr. de Havilland Hall said with regard to the fat man choosing the stout physician is very amusing, and I suppose, when I want to insure my own life, I ought to look out for a lean examiner.